Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1283L Standalone Contactless Reader

Technical Specifications V1.04

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1.0. Introduction

The ACR1283L is a cost-effective and powerful contactless smart card reader designed to operate in standalone mode. Its contactless smart card interface can access major contactless cards following the ISO 14443 standard, which includes the widely used MIFARE® series. It also comes with four built-in SAM slots, making it suitable for a wide range of applications that have multiple card issues or different security requirements. ACR1283L enriches user interaction with its two-line graphic LCD, four LEDs and a buzzer to clearly display application and card operation status, as well as a twelve-key capacitive touch keypad for user input. In addition to its standalone operation, the ACR1283L also supports PC-linked operation for typical contactless PC/SC host applications.

With its high speed 32-bit MCU and strong antenna performance, ACR1283L is ready for highly secure and highly demanding applications where speed and security are of high importance, such as government, time and attendance, payment, and loyalty applications. An all-in-one, cost effective and powerful terminal designed to provide greater flexibility and convenience, ACR1283L is the smart choice for your smart card applications.

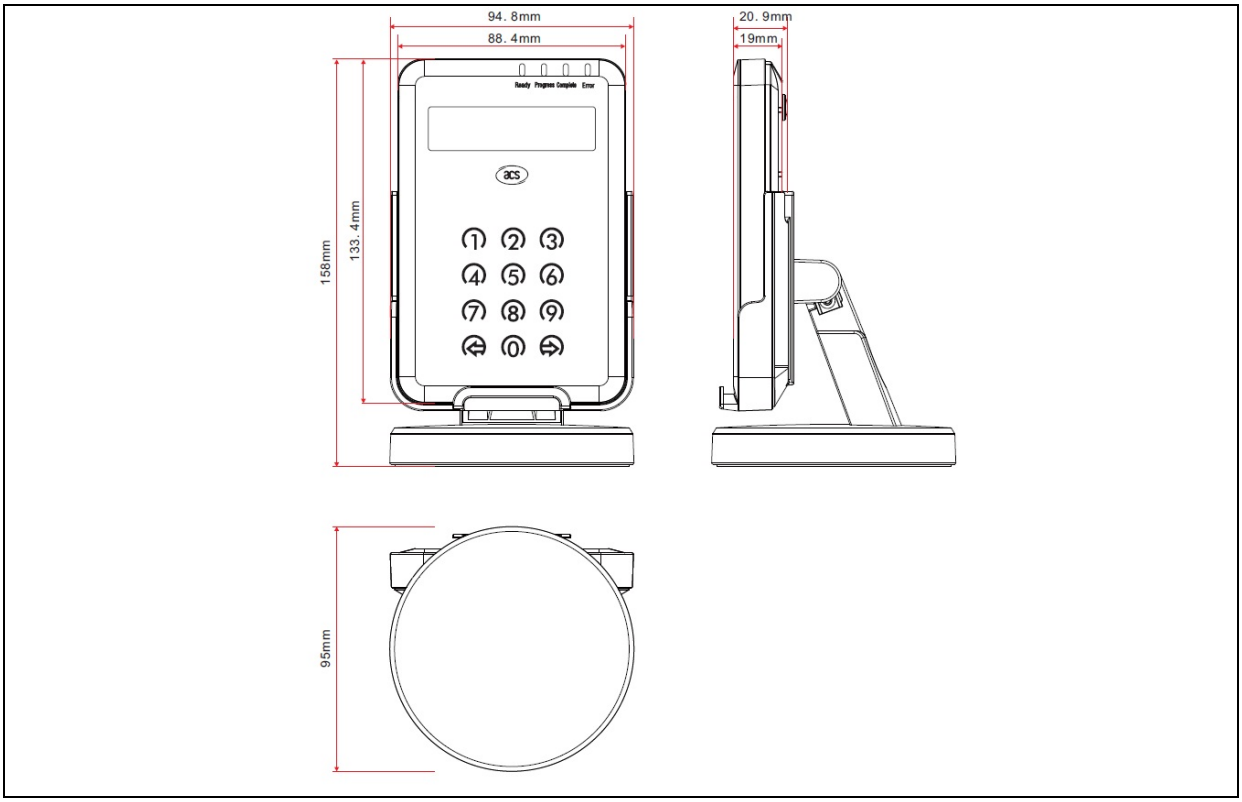
2.0. Features

- Dual Operation Modes:
  - PC-linked
  - Standalone
- PC-linked Operation:
  - USB 2.0 Full Speed Interface
  - CCID Compliance
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- Standalone Operation:
  - Support for third-party application programming
  - Over 400 KB memory space for third-party application
  - Over 500 KB memory space for data storage
  - Supported development platform:
    - IAR Embedded Workbench, Version 5.50 or above
    - CoIDE(GCC), Version 1.3.0 or above
- Smart Card Reader:
  - Contactless Interface Read/Write speed of up to 848 Kbps
  - Built-in antenna for contactless tag access, with card reading distance of up to 50 mm (depending on tag type)
  - Support for ISO 14443 Part 4 Type A and B and MIFARE series
  - Built-in anti-collision feature (only one tag is accessed at any time)
  - Four ISO 7816-compliant SAM slots (MCU Card, T=0 and T=1)
- Built-in Peripherals:
  - Two-line graphic LCD
  - Four user-controllable LEDs
  - User-controllable buzzer
  - Twelve-key capacitive touch keypad
- In-device AES (128 and 256), DES and 3DES encryption
- Supports Android™ 3.1 and above
- USB Firmware Upgradability
- Compliant with the following standards:
  - ISO 14443
  - ISO 7816 (for SAM slot)
  - CE
  - FCC
  - PC/SC
  - CCID
  - Microsoft® WHQL
  - RoHS 2

3.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program

4.0. Technical Specifications



User-programmable Memory	
Memory	400 KB for Third-party Application Storage
	512 KB for Data Storage
Universal Serial Bus Interface	
Power Source	From USB
Speed	12 Mbps (Full Speed)
Supply Voltage	Regulated 5 V DC
Supply Current	Max. 500 mA
Contactless Smart Card Interface	
Standard	ISO 14443 Type A and B, MIFARE
Protocol	ISO 14443 T=CL for ISO 14443-4 compliant cards and T=CL Emulation for MIFARE series
Operating Frequency	13.56 MHz
Operating Distance	Up to 50 mm (depending on tag type)
Smart Card Read/Write Speed	106 Kbps, 212 Kbps, 424 Kbps, 848 Kbps
Antenna Size	65 mm x 60 mm
SAM Card Interface	
Number of SAM Card Interfaces	Four
Standard	ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V), T=0 and T=1
Supply Current	Max. 50 mA
Smart Card Read/Write Speed	9.6 Kbps – 344 Kbps
Short Circuit Protection	+5 V/GND on all pins
CLK Frequency	4 MHz
Physical Specifications	
Dimensions	Main Body: 133.4 mm (L) x 88.4 mm (W) x 20.9 mm (H); With Stand: 158.0 mm (L) x 95.0 mm (W) x 95.0 mm (H)
Weight	Main Body: 185 g With Stand: 420 g
Color	Black
Cable Length	1.5 m

Built-in Peripherals

LCD Display ..... 128 x 32 pixel graphic LCD with yellow-green backlight
Number of characters: 2 line x 16 characters
LED Status Indicators ..... Four LEDs: Green, Blue, Orange and Red
Buzzer ..... Monotone
Keypad ..... 3 x 4 Keys, Capacitive type

Other Features

Tamper Switch (Internal anti-intrusion detections and protection)
In-device AES, DES and 3DES Encryption Algorithm
USB Firmware Upgradability

Operating Conditions

Temperature ..... 0 °C – 50 °C
Humidity ..... Max. 90% (non-condensing)
MTBF ..... 190,000 hrs

Application Programming Interface

PC/SC
CT-API (through wrapper on top of PC/SC)

Certifications/Compliance

ISO 14443, ISO 7816, CE, FCC, PC/SC, CCID, RoHS 2, USB Full Speed
Microsoft® WHQL for Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8

Device Driver Operating System Support

Windows® 2000, Windows® XP, Windows® Vista, Windows® 7, Windows® 8, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012
Linux®, Mac OS®, Android™ 3.1 and above